

**Research Center for
Functional High-Performance Computing
for Financial Information Technology**

**WG 2.8 meeting
Marble Falls, 2011-03-10**

HIPERFIT

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Functional High-Performance Computing
for Financial Information Technology

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Research areas

— [**MF**: Computational and mathematical models for pricing and risk

— [**DSL**: Domain-specific languages for financial modeling and specification

— [**FP**: Functional programming for transparency (correctness, reasoning) and semantic parallelism

— [**HPS**: High-performance systems for massively-parallel hardware

Central hypothesis: Less is more

- [Achieve **transparency** (high-level specification) and **high performance** (parallel architectures) and **high productivity** simultaneously by doing “less”:
 - Use high-level declarative functional programming and declarative DSLs for expressing financial models and information
 - Skip “indirection” of going through imperative software architecture layers

HIPERFIT: Vitals

— [Period: 1.1.2011-31.12.2016

— [Partners: DIKU, IMF, Danske Bank, Jyske Bank, Lexifi, Nordea Bank Danmark, Nykredit, SimCorp

— [Funding:

— Program Committee for Strategic Growth Technologies under the Danish Strategic Research Council, Program (31.4 mio. kr.)

— Partners (12 mio. kr., in kind)

Cooperating partners

— [FM: D-CAF, Goethe-U. Frankfurt (Kraft), Imperial College (Biffis)

— [Programming language technology: UCLA (Palsberg), CMU (Harper), Chalmers (Sheeran), U. Chicago (Reppy), MSR (Singh, Syme), UNSW (Chakravarty)

— [HPS: U. Oxford (Giles), Chinese Academy of Science (Chen)

— [Database systems: U. Tübingen (Grust)

Positions

— [1 center manager: Assistant or associate professor position, 50% research, 50% center management (6 years)

— [3 postdoc positions (2 years each)

— [6 Ph.D. stipends (3 years each)

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50-75% FP

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Planned activities (2012)

— [April-June: MS/Ph.D. course on Parallel Functional Programming (at DIKU)

— [June: ICFP Programming Contest (well...maybe)

— [June-August: HIPERFIT Summer of Code

— [June-August: Summer visitor program with workshops, mini-courses, conferences; e.g. NordForsk summer school in PL issues, conference on stopping...

— [August or September: ICFP 2012 (in CPH)

More information

— [URL **hiperfit.dk** (or hiperf.it)

Questions?